

XII.—*Notes on South African Accipitres.*

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IN submitting the following notes on the South African Birds of Prey, I do so knowing that they are far from being perfect; but at the same time I hope that something of interest will be found in them, and that they will lead ornithologists who may have better opportunities than I have, to inquire into and elucidate some of the questions that I have raised. I am aware that there have been numerous changes made in the nomenclature of the group; and as I have not had access to all the literature in this connexion, I have thought it best to adhere, for the most part, to the old names, and the arrangement followed by the late Mr. J. H. Gurney in his 'List of the Diurnal Birds of Prey.'

The Accipitres appear to have been somewhat neglected in recent years by modern ornithologists, and there is no doubt that this Order is in need of critical examination and rearrangement, while many genera will have to be split up at least into subgenera. I have, however, not attempted anything of that sort in this place, partly because I do not feel myself competent to do so, not having sufficient material at my command, and partly because Mr. A. Roberts of the Transvaal Museum, in a letter to me, has informed me that he has in hand a review of the South African species, and judging from a brief summary which he has sent me, it would appear that he proposes to make a good many changes in nomenclature, both as regards species and genera.

The notes on habits and plumage-changes are all from my own personal experience; and if they appear somewhat meagre, I must ask to be forgiven, for the reason that during twenty-five years' soldiering in South Africa, most of the time in the ranks, I have been unable to keep copious notes, and even those that I have made from time to time have for the most part been lost. During the last few years I have been devoting special attention to this

group, always a favourite with me, and have been also finishing a series of paintings of all the South African species in different stages of plumage. With reference to the plumage-changes, I would like to point out that many authors mention and describe many "stages" through which certain species pass before attaining the fully adult state, and give us the impression that each individual passes through these "stages." This I do not believe to be the case. That many species take several years to assume the fully adult plumage is well known, but in my opinion this change does not always follow any particular rule, some individuals attaining the adult plumage quicker than others. We cannot place too much reliance on observations made from captive specimens, which, of necessity, live without proper exercise, food, etc., under abnormal conditions, such as tend to delay, or arrest, the normal process of moulting. Thus Mr. A. K. Haagner, the director of the Zoological Gardens at Pretoria, informed me that a Bateleur Eagle (*Helotarsus ecaudatus*) in the gardens took eight years to assume the fully adult plumage. I greatly doubt whether under normal conditions it would have taken so long to do so.

I have not here gone into the geographical distribution of the various species, as this subject requires more time than I have yet been able to devote to it. In this connexion I would remark that the fact of a certain species having been recorded from this or that locality does not necessarily mean that such locality is its true "*patria*," as in many cases single individuals straggle to districts far from their real home; these will generally be found to be young birds (such as the single specimen of *Gypohierax angolensis* secured by Ayres at Potchefstroom), and for the following reason. I believe that in most species of Birds of Prey each adult pair have their chosen home and beat over the surrounding country, which they jealously guard against all intruders; and as each brood of young are fledged and able to fend for themselves, they are driven off by their parents and become wanderers until such time as they can

secure a location for themselves and mates to share it with them.

Although during the many years I have lived in South Africa I have travelled through most parts of it, I have only been able to do any systematic collecting in eastern Pondoland, East Griqualand, and recently in the country lately known as German South-West Africa but now as the South-West Protectorate. Therefore my notes refer principally to these districts.

In the following notes I shall have occasion to refer to the following works :—

- (1) Catalogue of Birds in the British Museum. Vol. I. by R. Bowdler Sharpe.
- (2) The late J. H. Gurney's "Notes" on the above Catalogue, which were published in 'The Ibis' between 1875 and 1882.
- (3) 'A List of the Diurnal Birds of Prey' by the late J. H. Gurney.
- (4) 'The Fauna of South Africa': Birds. Vol. III. by Mr. W. L. Selater.

The first I will refer to briefly as "Sharpe," the second as Gurney's "Notes," the third as Gurney's "List," and the fourth as "Selater."

In conclusion I would like to thank the Directors of the Transvaal, South African, Port Elizabeth, Albany, Natal, Durban, and Rhodesian Museums for their great kindness in answering my numerous queries, and in many cases sending me specimens for examination. Also Mr. W. L. Selater and Mr. J. H. Gurney for kindly giving me certain information with regard to specimens in the British and Norwich Museums.

1. *Serpentarius secretarius* (Scop.). Secretary Bird.

I have never found this bird very numerous, but have seen it practically in every part of South Africa I have visited; it is, perhaps, scarcest in the South-West Protectorate, where I have only met with it on one or two

occasions. Adults are usually seen in pairs, single birds as a rule being immature or young. They look very handsome stalking along over the veldt. The long tail and crest, together with the black thighs, which contrast strongly with the slate-grey plumage, combine to give them a peculiarly fine appearance. Although I have never found them particularly wild, they generally keep well out of gunshot, and if approached too closely, at first run with outstretched wings at a good pace, and then, if still pursued, rise and fly off. I have heard it stated that they can be caught with dogs, or by pursuing them on horseback. I should think this must be very unusual, as I have never seen them have any difficulty in rising and flying off as far as they wished, and have often seen them soaring at a great height—once while partridge-shooting high up on the Drakensberg Mountains, I saw one high overhead. Certainly, when there is little or no wind, they seem to have a little difficulty in rising quickly, requiring to run for some distance before they launch themselves into the air.

There has been much discussion from time to time as to whether this bird should be protected by law. Formerly it was protected owing to its supposed snake-killing propensities; but this protection has now been withdrawn, owing to the fact that it has been found harmful to game. Personally I am of the opinion that this fine species should be granted the fullest protection, for the reason that it is nowhere common enough to do any real harm to the stock of game. Certainly it does destroy game-birds, chiefly the young and eggs. I had only to watch a pair beating over the veldt to understand that little that moves can escape them, and I have taken from the crop of one specimen three young quails, half a dozen larks' or pipits' eggs, a rat, a lizard, and a small night-adder. On the other hand, it destroys a very large number of rats, mice, locusts, etc. Near a tree in which was a nest of this species, I found hundreds of "castings"; these were the size and shape of an ordinary sausage, and on examination proved to consist almost entirely of the bones and fur

of rats and mice, with occasionally the remains of lizards and snakes. Amongst those I examined there were no signs of feathers. As to its supposed snake-killing habits, I am firmly of the opinion that it never goes out of its way to look for snakes; but it would certainly attack and kill any it came across, as it would almost any other living thing—from beetles, termites, and grasshoppers, to mammals as large as a young hare. I have only found one nest; this was situated in the main fork of a small black wattle-tree growing in a paddock on a farm in East Griqualand. It was a huge mass of sticks and grass, and contained one young bird nearly fledged; the remains of another lay on the ground under the nest. It is a curious fact that, in this and some of the other large Birds of Prey, although the full complement of eggs is two, and two young are usually hatched, rarely more than one reaches maturity—either the other dies in infancy, or else it is pushed out of the nest by its parents or its fellow.

I have nothing to add to the description of plumages given by Selater, except to note that the iris in the young bird is usually very dark brown, and the bill dark brown or black, not whitish grey as in the adult. The white upper tail-coverts are also usually more or less barred with black.

2. *Lophogyps occipitalis* (Burch.). White-headed Vulture.

I have only met with this Vulture in the northern portions of the South-West Protectorate and Ovamboland, but in the latter country it was the only species of Vulture I noticed. I usually saw it in pairs, but after a fight with the natives in Ovamboland, when there were numerous dead horses lying about, a good number collected to feed on the carcasses, together with Kites and Pied Crows.

As regards plumages, I should think that Selater's description of the juvenile plumage was taken from a bird in change to maturity. Quite young specimens which I have seen were very dark brown everywhere, including the downy feathers on the head. There is at

present an immature specimen living in the Pretoria Zoological Gardens, which has almost assumed the adult plumage. This bird still retains a good many of the brown feathers of the juvenile plumage among the white feathers of the head.

3. *Otogyps auricularis* (Daud.). Black Vulture.

As with the previous species, the only part of South Africa in which I have observed this bird is in the South-West Protectorate. There, on the whole, I found it rather scarce; but one day, while out shooting in the Windhuk district, I came across quite fifty of these huge Vultures feeding on a dead horse in company with a few Kolbe's Vultures (*Gyps kolbei*). I was rather surprised to see so many together, as in all accounts I have read of its habits this is said to be rather a solitary bird, not more than a pair being usually seen feeding at a carcass at which other species form the majority. They were not particularly wild, and I shot a fine specimen. It may be worth while here to note the colouring of the bare parts of the head and neck in this specimen, as they differ in some respects from the description given by Schlater. The general colour of the upper part of the head and neck pale flesh, brightening here and there, especially about the neck lappets, to pale crimson, below the eyes and base of lower mandible changing through lilac to leaden blue.

4. *Gyps kolbei* (Daud.). Kolbe's Vulture.

This is the common Vulture of the greater part of South Africa, and I have met with it almost everywhere I have been. I believe it has not been previously recorded from the South-West Protectorate, but, as I have mentioned above, I met with a few feeding on a dead horse, together with the previous species, in the Windhuk district.

This is such a well-known bird and so much has already been written about its habits, that I have little to record in this respect, except to note that of recent years it has been the cause of great loss to farmers in some districts,

from its habit of attacking and killing lambing-ewes and lambs. So much has this been the case, that in many places poison clubs have been formed to deal with the Vultures. I would also like to mention an instance of the extraordinary vitality shown by one of these birds, which I killed while it was feeding on a dead horse. I shot it with a service Lee-Metford rifle, the bullet entering the head on the left side in the region of the ear and coming out below the eye on the opposite side, but apparently missing the brain. The bird was picked up as dead and carried to camp—a distance of about three hundred yards, showing no signs of life except for convulsive movements now and again. Yet after lying on the ground for a few minutes, it suddenly jumped up, ran a few yards, and then launched itself into the air and flew out of sight over some hills, never to be seen again. I have no notes as regards plumage-changes.

5. *Gyps rueppelli* (Bon.). Rüppell's Vulture.

I am of the opinion that this Vulture will have to be removed from the South African list. It is a North African species, which I believe has never occurred in South Africa, all records of its presence having been errors caused by confusing it with *Pseudogyps africanus*, which in its juvenile plumage somewhat resembles it. Therefore, I believe that on investigation it will be found that all Vultures procured in South Africa and hitherto identified as belonging to this species will prove to be *P. africanus*.

Many years ago Mr. J. H. Gurney (Senior) recorded Vultures of this species as having been collected by the late Thomas Ayres at Potchefstroom and in Natal; and in this connexion I wrote to Mr. J. H. Gurney (Junior) asking him to examine the specimens, if they were still in the Norwich Museum. He replied, informing me that there were only two South African specimens in the Museum labelled *G. rueppelli*—one collected by Ayres at Potchefstroom, the other by Verreaux with locality "S. Africa."

From the descriptions furnished me by Mr. Gurney, I believe both of these should be referred to *P. africanus*. Furthermore, all the Vultures found breeding at Potchefstroom and collected by Major Sparrow and Mr. Austin Roberts have proved to be *P. africanus*.

Mr. W. L. Selater, writing of a collection of birds procured by himself on the Zambezi at the Victoria Falls (Ibis, 1905), records a specimen of *G. rueppelli*. This specimen is now in the South African Museum at Cape Town, and through the kindness of the Director I have been able to examine it; there is no doubt whatever that it is a specimen of *P. africanus* in juvenile plumage. The number of tail-feathers is not always a safe guide, as I shall have occasion to point out when discussing *P. africanus*. There are no specimens of the true *G. rueppelli* in any of the South African museums.

6. *Pseudogyps africanus* (Salv.). African White-backed Vulture.

I have never met with this species in any part of South Africa in which I have been stationed, and so am not able to add anything to what has already been written with regard to its habits. I would, however, like to discuss a point which seems to me to require investigation. The genus *Gyps* has been separated from *Pseudogyps* on account of the number of tail-feathers, which are fourteen in the former, and are said to be twelve in the latter; but as regards the present species, this does not appear to be a constant character. I have not been able to examine a large series, but there is a very typical adult mounted in the South African Museum, Cape Town, procured by Mr. Austin Roberts at Potchefstroom, which has fourteen tail-feathers (counted). The descriptions of the adult and young plumages given by Selater do not seem to me to be particularly good. I should not consider the colour of the adult "dark brown," but pale silvery brown, almost pale grey; on the other hand, the young plumage is dark brown, each feather with a central fulvous streak and paler

edging, the neck-ruff being composed of lanceolate feathers bordered with dark brown. There is no sign of the white back of the adult.

7. *Neophron percnopterus* (Linn.). Egyptian Vulture.

I have met with this Vulture sparingly in the south-eastern districts of South Africa, but never came across it in the South-West Protectorate, whence it was recorded by Andersson. I have occasionally seen it beating about native kraals on the look-out for offal, but I should think that it met with little success, as the native dogs and pigs leave little in this line. Sometimes when a horse or other animal has died on the veldt, I have seen one or two of these birds feeding at the carcass together with Kolbe's Vultures. I have never met with it nesting, nor have I ever seen young or immature specimens, and there are none in any of the South African Museums. In recent years I have heard of no cases of it nesting anywhere in South Africa, so that I am of the opinion that it must now be a much rarer species than it used to be when, as recorded by Selater, it was found breeding at Hopefield and Colesberg.

8. *Neophron pileatus* (Burch.). Hooded Vulture.

I have never met with this species, and although it was recorded by Andersson from Damaraland, I never saw it in that country. I have no notes as to plumage-changes, etc.

9. *Gypaëtus ossifragus* (Savig.). Southern Lammergeyer.

In my experience this must be a very rare species all over those districts in which I have collected, as I have never met with it. In East Griqualand I was stationed for many years close to the Drakensberg mountain-range on the border of Basutoland, where I should have expected it to occur; but I never heard of it, unless the "Golden Eagles" which from time to time people told me they had seen belonged to this species.

10. *Gypohierax angolensis* (Gmel.). Vulturine Sea-Eagle.

The single juvenile specimen of this bird, which was secured by Ayres at Potchefstroom in the Transvaal, was no doubt an accidental straggler to South Africa, and no further specimens appear to have been secured.

The systematic position of this species appears very doubtful. I have here followed Gurney in placing it next to *Gypaëtus*, but Selater places it between *Helotarsus* and *Haliaëtus*.

11. *Circaëtus fasciolatus* (Gray). Banded Harrier-Eagle.

I have not met with this species, which appears to be a rare bird everywhere in South Africa. To the localities from which it has already been recorded I can add Portuguese East Africa, whence there are two specimens, an adult female and an immature male, in the Transvaal Museum, Pretoria. The adult female does not differ from Selater's description, with the exception of having white or whitish tips to many of the feathers of the scapulars and lesser wing-coverts, and of having the tail brownish grey, crossed with four black bands.

I have not seen a description of the young of this species, so will here give a short description of the immature specimen in the Transvaal Museum. The plumage, especially on the head and neck, is a good deal worn, and there and on the breast and flanks a few feathers of the adult plumage are appearing. The upper surface of the head and the back of the neck are white, each feather with a fulvous brown centre and a darker brown shaft-streak, while here and there new dark brown feathers are appearing. Sides of face, ear-coverts, chin, and throat white streaked with pale greyish brown. Mantle, scapulars, wings, and upper tail-coverts similar to the adult but everywhere paler brown. The tips of all the feathers whitish and with dark brown shaft-streaks. Tail pale brown, crossed by fine dark brown bands. Breast and whole of the under parts white; on the breast

most of the feathers have dark brown shaft-streaks and terminal spade-shaped spots, while a few of the barred feathers of the adult plumage are appearing on the flanks.

12. *Circaëtus pectoralis* (Smith). Black-breasted Harrier-Eagle.

I have met with this species on but few occasions. In eastern Pondoland I only once saw a specimen; in East Griqualand I shot an immature bird; and in the South-West Protectorate I saw only one or two examples during my stay. For this reason I cannot say much from personal observation with regard to the habits. Those I have seen have usually been perched on the top of some large thorn-tree, or else soaring, often at a good height. The crop of the only specimen I ever shot contained the remains of a lizard and a rat. In his notes on Sharpe's Catalogue Gurney very fully discusses the various phases of plumage this species passes through in changing from the juvenile to the adult state, and from my observations it would appear that the conclusions arrived at by him are correct. I would, however, like particularly to point out what may be considered as the second stage of plumage, in which this species closely resembles the European *C. gallicus*. This has apparently caused Mr. Austin Roberts, of the Transvaal Museum, to record a specimen of the latter species from South Africa. I have examined the specimen, and in my opinion it is merely an example of *C. pectoralis* in immature plumage. Mr. Gurney has, moreover, drawn attention to a fact which has also struck me, and that is the extraordinary extent to which the plumage of all the Harrier-Eagles is liable to abrasion before a new moult sets in. I have an immature specimen in which the upper surface of the head is white with narrow dark brown shaft-streaks. This is caused by the *entire* webs of all the feathers having been worn away, leaving only exposed the dark brown shafts and the white downy bases of the feathers.

13. *Circaëtus cinereus* (Vicill.). Brown Harrier-Eagle.

I have met with this Harrier-Eagle both in eastern Pondoland and in the South-West Protectorate. In the former country I believe it to be migratory, as I have only seen it there during the summer months, though in fair numbers. I have usually found it singly, occasionally in pairs, and generally among the mimosa-bush country along the river valleys. These birds seem to be rather sluggish and to spend a considerable time seated on the top of some conspicuous tree, but I have occasionally seen them soaring at a good height, and when doing so they have always appeared to me to resemble large Kites, while the shape of the wings and the fact that the outer tail-feathers are slightly longer than the others add to this resemblance. I believe their food to consist almost entirely of snakes, lizards, mice, and rats, but I once saw an individual make a very determined stoop at a partridge which I put up.

There has been a good deal of discussion from time to time as to whether or no this bird and *C. pectoralis* are one and the same species, but I think it is now agreed that they are distinct. (See Mr. W. L. Selater's Notes, *Ibis*, 1912, and Mr. Claude Grant, *Ibis*, 1914.) Gurney also discussed the question very fully in 'The Ibis,' 1878, but at that time did not appear to have come to any definite conclusion, while subsequently in his "List" he kept the two birds separate.

Selater, in his 'Fauna of South Africa': Birds, vol. iii., united the two species; so for the benefit of those who have not seen accounts of adult and juvenile plumages, I will give brief descriptions here. The adult is of an uniform dark sepia-brown both above and below, all the feathers strongly glossed with purplish red in some lights; the tail grey barred with dark brown. The young are very similar in general colour, although perhaps of a rather paler brown, and with more or less exposed white bases to the feathers of the under parts.

14. *Helotarsus ecaudatus* (Daud.). Bateleur Eagle.

I found this fine Eagle fairly numerous in eastern Pondoland as well as in the South-West Protectorate, and have had pretty good opportunities of observing its habits. It is a bird of magnificent flight, spending nearly all its time on the wing; in fact, I scarcely ever remember having seen one perched. There are few more beautiful sights than to watch one of these birds—the flight is very easy and buoyant and peculiarly characteristic, so that even when seen at a great distance the identity of the species is never in doubt. The jet-black plumage of the head and body contrast beautifully with the snow-white under surface of the wings, while the red cere, legs, and feet, the last extended beyond the short maroon-red tail, add just the right finishing touch.

I have noticed that each pair seem to have a recognised beat, and, at any rate in the breeding season, chase away all intruders on what they consider their own hunting-grounds. I once saw a pair in full pursuit of a third which had evidently been caught poaching. They were going at a tremendous pace, and one of the pursuers was making a curious hollow drumming sound, caused as far as I could judge by the wings being struck together over the back, much as some pigeons are in the habit of doing. On another occasion I saw a Tawny Eagle drive away one of these birds which had approached too close to its nest, but the Tawny Eagle was no match for the Bateleur in flight. In his beautiful work, 'A Breath from the Veldt,' Mr. J. G. Millais figures and describes a habit, noticed by him in this species, of looking downwards and backwards when hunting, so as to search the ground over which it has already passed. I must have seen hundreds of these birds, but have never noticed this habit, although they often look straight downwards, as other eagles do. I hope Mr. Millais will forgive me for criticizing his drawing of the bird in flight, but he depicts it with its feet drawn up to its breast, whereas, in my experience, this and all other Birds of Prey fly with the legs and feet extended below the tail. Moreover I have

never seen this species attack game-birds as described and figured by the same author, and I think such an occurrence must be very rare, as although it is a bird of strong flight, the bill and feet are comparatively weak, and not adapted to attacking and killing any large prey. In my experience that prey consists principally of such small game as snakes, lizards, rats, and mice—in fact nothing larger or stronger than a young hare ; added to which it will also feed on carrion, and at one of my camps quite a number were caught in traps baited with raw meat and set for jackals. I have only found one nest. This was placed in a fork of one of the large branches of an enormous “Camelthorn” tree, and was quite inaccessible. The smaller branches of the same tree were crowded with thorny nests of the Buffalo Weaver (*Textor niger*). In Pondoland the natives have some superstitions with regard to the Bateleur, and at one time witch-doctors would be willing to give as much as a cow for the body of one of these birds, from which a powerful “medicine” was made, with which the fighting men were doctored in war-time.

The progress from the juvenile to the adult plumage appears to be very gradual, but there seems to be no distinct intermediate stage, as immature birds may be found showing every stage of progress. I have already mentioned a specimen in the Zoological Gardens at Pretoria which was said to have taken eight years to attain the adult plumage. It has been suggested that the difference in colour of the secondary wing-feathers in adults is sexual, the male having these uniform black, while in the female they are grey with a terminal black band. From my own experience I am inclined to believe this to be the case, but I have not been able to examine a sufficient number of correctly-sexed specimens to decide the question. With regard to the white-backed form which was named *H. leuconotus* by Rüppell, much discussion has taken place from time to time as to whether it should be considered as merely a variety, a very old bird, or a distinct species. Personally I am inclined to the belief that it may be considered as a

geographical race, for I understand that the great majority of specimens of this form have been obtained in the White Nile region. In South Africa it must be very rare, and none of the South African museums possesses a specimen. The only South African record I can find is a note by Mr. G. A. K. Marshall (*Ibis*, 1900, p. 258), where he records having seen three examples near Salisbury, Mashonaland. The only specimen at all approaching the white-backed form I have met with personally was an adult male which I shot at Okanjande in the South-West Protectorate; in this all the rufous portions of the back were much paler than usual, though the feathers were not worn or faded. Other specimens shot in the same district were normal. As to the systematic position of the species, I agree with Gurney that it seems best to place it near the Harrier-Eagles.

15. *Polyboroides typicus* (Smith). Bare-checked Hawk.

This handsome Hawk is not uncommon in eastern Pondoland, where I have chiefly had opportunities of observing its habits. I have also met with a few individuals in East Griqualand and in the South-West Protectorate. I have almost invariably found them singly and usually amongst the bush bordering rivers and streams. From the contents of the stomachs of those that I have examined it would appear that their food consists almost entirely of frogs, lizards, and insects of all sorts. I have observed one going through curious gymnastic feats amongst the branches of a decayed tree, sometimes clinging to the bark like a creeper, at others hanging more or less upside-down beneath a branch like a Tit. I believe that the bird was busy extracting the large grubs with which the decayed portions of the tree were riddled. I have usually found this species among rather thick bush, but I once saw it stalking about on the open veldt, apparently hunting grasshoppers, and looking very much like a small Secretary Bird in gait and other ways. I have only found one nest; this was in eastern Pondoland, and was situated in the fork of a tree in a wooded kloof, but

I was unable to reach it. The nest appeared to be a comparatively small structure of sticks, and judging by the behaviour of the parent birds, which were very fearless, probably contained eggs or young. The flight is rather slow and "floppy," though I have seen them soaring, but not as a rule at any great height.

In juvenile plumage this species seems to be very variable, and there appear to be two extreme forms of colouring in that plumage. In one the colouring is very dark both above and below; the sides of face, ear-coverts, and throat very dark brown, almost black. The other is a very pale form on a typical specimen of which in the Transvaal Museum collection I have made the following notes:—"A juvenile specimen from Knysna; very pale above, the buffish tips to the feathers predominating over the dark brown basal portions. On the head and neck the feathers are tawny rufous with dark brown centres; the throat and breast tawny white with narrow dark brown streaks, the flanks, abdomen, and thighs tawny buff, mottled with tawny brown."

Among the adults I have examined I have noticed that some have almost lost the black spots from the scapulars and wing-coverts; perhaps these are very old birds. There is a rather curious specimen in the Transvaal Museum from Klein Letaba in which the *whole* plumage of the upper parts is very finely vermiculated with a paler shade of grey. The white tail-bars are also much more finely vermiculated than usual, and the *whole* of the plumage of the under parts is so much suffused with grey that they might be described as being grey, here and there slightly barred with white and a darker shade of grey. There is another specimen in the same collection from Swaziland which is similar, but the grey shade is not quite so pronounced.

16. *Circus macrurus* (Gmel.). Pale Harrier.

I have found this Harrier fairly numerous during the summer months throughout the open country in the eastern

districts of Cape Colony, but much less common in the South-West Protectorate, with the exception of the vicinity of the great Etosha Pan on the borders of Ovamboland, where I saw a good many in January, 1917. So much has already been written of the habits and plumages of this and other European Harriers that I shall add nothing here.

17. *Circus cineraceus* (Mont.). Montagu's Harrier.

This species, although met with in the same districts as the preceding, never appears to be nearly so common; but the females and young of the two being so nearly alike when seen on the wing, it is difficult to lay down any definite ruling in this respect, and I can only base my conclusions on observations of adult males, and even the latter are not easily distinguished when seen at a distance. In the South-West Protectorate I never met with it except in the vicinity of the Etosha Pan, where I shot an adult and young male in January, 1917. Although this species is usually found in South Africa only during the northern winter, I shot an adult male in East Griqualand on the 8th of July, 1911, which is mid-winter in South Africa. I have never met with the melanistic form in South Africa, nor do I know of any such specimens having been secured.

18. *Circus maurus* (Temm.). Black Harrier.

I have never met with this Harrier, which appears to be confined to the southern districts of Cape Colony. I almost think that the bird is on the verge of extinction. There appear to be no very recent examples in any of the South African museums. Although I have made diligent enquiries, I have been unable to hear of any young specimens, or to obtain one, or even to hear of this species in localities where it is supposed to occur. I would therefore be very much obliged if anyone knowing where it does still occur would give me any information, and if possible send young and immature specimens.

19. *Circus æruginosus* (Linn.). European Marsh-Harrier.

This seems to be a very rare species in South Africa, and the few specimens that have been secured all appear to have been young or immature. I have never personally met with it.

20. *Circus ranivorus* (Daud.). African Marsh-Harrier.

I found this Harrier very common throughout the south-eastern districts of Cape Colony wherever marshy ground was to be found, but never met with it in the South-West Protectorate or Ovamboland. I had fully expected to see it in the latter country, as, at the time I was there, from January to March, 1917, the country was more or less a marsh. It is entirely a marsh frequenter, and closely resembles the European species in habits. It is usually seen beating slowly over the reed-beds in search of prey, which consists of almost any living thing which it is strong enough to kill—such as frogs, small birds, mice, rats, young ducks, and snipe. I have several times found places where it had been feeding on Dabchicks (*Podiceps capensis*), though how it had managed to catch these agile divers is a mystery. If the sportsman returns to a marsh on the day after he has shot over it, he will find all along the shores the remains of ducks that had been lost at the time but subsequently found and eaten by the Marsh-Harriers. At sunset, when the Bishop-birds and other Weavers return in thousands to the reed-beds to roost, I have noticed the Harriers dashing about and chasing them, to their great confusion, but I have never seen any caught. When duck-shooting I have often found the nests of this species, usually placed near fairly shallow water, and built in the middle of a clump of rushes; but on one or two occasions I have seen them in fairly deep water supported on a mass of floating vegetation. I once found a nest containing two eggs within a few yards of two nests of the South African Bittern (*Botaurus capensis*), one of which contained young, the other three eggs. During the breeding-season I have noticed the male birds soaring up to a great height, and then descending in a

series of dives with closed wings, after each dive shooting up a little way and at the same time uttering a kind of mewing cry—evidently a kind of “love flight.”

I have nothing to note as regards the juvenile plumage, but it seems to me that there is a distinct difference between the sexes when adult. Females usually have a white or buffy-white band across the breast, and the feathers of the nape and lesser wing-coverts much more marked with white than the males; old males also have the central tail-feathers strongly shaded with grey. There is a very handsome specimen of what I take to be a very old male bird in the Transvaal Museum, which has not only all the tail-feathers grey, barred with very dark brown, but all the primaries, primary-coverts, bastard wing, and secondaries of the same colour.

21. *Melierax canorus* (Risl.). Chanting Goshawk.

I have not met with this exceedingly handsome species in the eastern Cape Colony, but in the South-West Protectorate it was fairly common, especially in the thorn-bush country, which covers most of the central and northern districts. It is usually seen in pairs or singly, perched on the top of some conspicuous thorn-tree on the look-out for its prey, which consists, so far as I have observed, principally of small mammals, lizards, and small birds; but on several occasions when I have been out shooting guinea-fowl and partridges, a few individuals have appeared, evidently on the look-out for wounded birds or dead ones that had been lost. Its musical call has often been noted, but its singing powers as described by Levaillant are evidently a fiction.

In juvenile plumage this species seems to be subject to a certain amount of variation, but I have not been able to handle a sufficient number of specimens to discuss the question thoroughly.

22. *Melierax mechow* (Cab.). Mechow's Goshawk.

My experience of this species is very small. I have only met with one or two specimens in the northern parts of the

South-West Protectorate and in Ovamboland. From what I saw of it, it appeared to resemble the previous species in habits, except that I generally found it in rather denser bush country. The crop of a specimen I shot contained a mouse.

22. *Micronisus gabar* (Daud.). Gabar Goshawk.

23. *Micronisus niger* (Bonn. et Vieill.). Black Gabar Goshawk.

I have not the slightest doubt that the black Gabar is only a melanistic form of the grey Gabar, as has already been suggested by other authors; both are equally common in the South-West Protectorate, the only part of South Africa where I have met with the species, and there I have frequently observed pairs, one of which was black and the other grey. I was, however, never lucky enough to find a nest belonging to one of these mixed pairs; it would have been interesting to see what the young birds were like, but I believe that the young of the black form are black from the time that they are hatched, so that one never meets with birds changing from the normal juvenile plumage to the black plumage. I have shot a black female with one of the secondaries with a broad white tip as in the normal form. Another which I took to be a young bird had two normally coloured barred feathers on the flanks. I have also noticed that the intensity of the black coloration varies in different specimens. Some are intensely black, so that even the barring on the tail and larger wing-feathers is more or less obscured, while others are a more *greyish* black. There is a very interesting specimen in the Albany Museum. This is a grey bird, but of a much darker grey than usual; the dark bars on the breast and flanks are broader and darker, and there are dark grey, almost black, bars on the normally white upper tail-coverts. It appears to me that this example was a variation in the direction of the black form. Some specimens of the black form have the tarsi and feet yellow, others red. I believe the yellow-legged birds to be juveniles. I have noticed that among

the black birds, females appear to be far more numerous than males.

I have nothing much to record about the life-history of this species, which has all the habits of a typical Sparrowhawk, frequenting the bush country and taking its prey, which consists principally of small birds, by a quick dash.

By Gurney, Sharpe, Selater, and most other authors it has been placed in the genus *Melierax*, but I think it should be removed from this and kept in Gray's genus *Micronisus*, of which it is the type. In proportions and habits it is very different from *Melierax*.

24. *Asturina monogrammica* (Temm.). One-streaked Hawk.

I know nothing of the habits of this species from personal observation, as I have never met with it. Sharpe does not give any description of the juvenile plumage, and Selater's account is decidedly meagre. I have examined a very large series from all parts of South Africa, and have never yet met with a specimen answering to Selater's description of the young plumage, so that I might conclude that either there are no juvenile specimens in any of the South African museums, or else that there is some error in Selater's description. There are, however, two examples among the large series in the Transvaal Museum which I take to be either young or immature. These resemble adults in every way, except that all the feathers of the scapulars and wing-coverts have narrow whitish edges, and the tail-bar, instead of being white, is dark grey.

With regard to the systematic position of this species, I have here followed Gurney in placing it near *Melierax*, to which it seems to me to have some affinity. Sharpe, and following him, Selater have placed it among the *Aquilinae*, but I am very doubtful whether it has any real relationship to that group.

25. *Scelopspizias polyzonoides* (Smith). Little Banded Goshawk.

I have only met with this little Hawk in the thorn-bush

country of the South-West Protectorate, where it is not uncommon. In habits it appears closely to resemble the English Sparrow-hawk, living amongst thick cover and preying on small birds; but I have occasionally found the remains of locusts in its crop. I have sometimes seen it perched on a small bush situated in the middle of some open ground, and I believe on the look-out for small rodents. I have nothing to record with regard to plumage-changes, but I would note that all the adults I have shot have had the irides bright red.

26. *Scelopizias tachiro* (Daud.). South African Goshawk.

This is a common Hawk in all the forest country in eastern Pondoland, and I have occasionally met with it in the adjoining districts of East Griqualand. It is a powerful and highly predatory species, and a great enemy of all small birds and mammals. It does not, however, confine itself entirely to birds and mammals, as I have taken the remains of lizards and frogs from the crop. It is truly wonderful to watch the ease and speed with which one of these hawks will dash through the thickest bush and whip some unsuspecting bird from its perch before it has time to know what has happened. They are also very destructive to poultry, where any are kept at places near their haunts. In the breeding season the males have a curious habit of soaring in circles high over the bush and at the same time uttering a curious squeaky cry—a habit I have never noticed in any other of the short-winged hawks. I have noticed that there is a distinct sexual difference in the plumages of the adults of this species. In the females the colour of the upper parts is brownish grey, and the under parts are somewhat dingy in colour compared to those parts in the males, with coarser bars; whereas in males the upper surface is a clear slate-grey, and the under parts are more brightly coloured with the bars narrower and more even. In the males also the tail always has two clearly marked white spots on the central tail-feathers.

27. *Accipiter minullus* (Daud.). Little Sparrow-hawk.

I have seen very little of this tiny Sparrow-hawk and have only met with it in eastern Pondoland, but even there on very few occasions. It is, however, such a small bird, living in very thick cover, that it may easily be overlooked. It is, from all accounts, a decidedly fierce little creature, preying on birds even larger than itself. One I shot was feeding on a thrush. Although I have never seen it noted, there appears to be a distinct difference in plumage between males and females. The males have the bars on the under surface broader and closer together, and sides of breast and flanks much more suffused with rufous, those parts in the female being almost white, narrowly barred with brownish black.

28. *Accipiter minullus tropicalis* (Rehw.).

I have not met with this race myself, but there are specimens in the Transvaal Museum, labelled *T. m. intermedius*, which I would refer to it; and my friend Major Thompson, of the S.A.M.C., showed me a specimen which he had shot at Grootfontein in the South-West Protectorate, which I would also refer to it. I was rather surprised to see that Mr. Claude Grant, when writing of *A. minullus* in 'The Ibis' some years ago, considered that Reichenow's *A. tropicalis* was not a good subspecies. Judging by those I have been able to examine, it appeared to me that there was a very distinct difference between the almost black colouring of the upper parts of the southern race and the grey colour of those parts in the northern race. In the latter also the under parts seemed paler, with less bright rufous colouring on the flanks.

29. *Accipiter ovampensis* (Gurney). Ovamboland Sparrow-hawk.

I have not met with this species and have nothing to record with regard to habits or plumage. I would note, however, that the type locality should be written Ovamboland, not Ovampoland.

30. *Accipiter melanoleucus* (Smith). Black-and-white Sparrow-hawk.

This appears to be everywhere a rare species, and I have never personally met with it. It, however, occurs in eastern Pondoland, as a specimen shot there was sent to me by a friend; this specimen was in the black, white-breasted plumage, and when shot was after my friend's chickens. Apart from the juvenile plumage, there appear to be two adult plumages—one in which the greater part of the under surface, like the upper surface, is black, and the other in which there is a good deal of white on the under surface. Most authors regard the latter as an immature stage, but this requires confirmation. An immature female in the King William's Town Museum appears to be changing into the later plumage, a good many black feathers, more or less barred with white, appearing amongst the rufous feathers of the under parts. I have never seen an entirely black specimen, the darkest I have seen having the throat white, the under tail-coverts barred with white, and more or less concealed white bases to the feathers of the abdomen.

This species should, in my opinion, be placed in a separate subgenus. It is a very large bird for a Sparrow-hawk, almost equalling the European Goshawk (*Astur palumbarius*) in size, and strongly resembling the young of that species when in juvenile plumage. The black and white plumage of the adult is strikingly different from that of any other member of the genus *Accipiter*.

31. *Spizaëtus coronatus* (Linn.). Crowned Hawk-Eagle.

I have only met with this splendid Hawk-Eagle in the forest country of eastern Pondoland, where it does not appear to be very common, or, at least, is not often seen. It is not, as a rule, observed on the wing, but I have occasionally seen it soaring at some height, uttering a loud cry. When seen in flight it is quite unmistakable owing to the broad, short wings and long tail. Its prey normally consists of monkeys, smaller bush-antelopes, bush-francolins, etc.; but where its haunts are in the

vicinity of houses or native kraals, it will often take fowls and other domestic birds. I once saw it hovering, like a gigantic Kestrel, over some terrified fowls that were taking cover in some long grass and low bushes, and I have heard of several undoubted cases of its having attacked and sometimes killed young pigs. Anyone who has examined a specimen in the flesh, cannot fail to have been struck by the immense muscular strength of the legs and feet, armed as the latter are with huge talons. In an adult female the hind claw measures as much as three inches round the curve, and for its size I think this species must be one of the most powerful Eagles in the world.

There is a very fine series of specimens of this Eagle in the Transvaal Museum, in all stages of plumage; and from an examination of these and others, I have come to the conclusion that there is a distinct sequence of plumages between the juvenile and adult dress, of which I will give a brief summary.

In the first plumage the whole head, neck, and under surface are white, with a faint tinge of rufous on the bases of the breast-feathers, and a few brown streaks on the longer feathers of the thighs. The upper surface is pale greyish brown, barred with dark brown, and all the feathers are broadly edged with white. The next stage is very similar, but the longer feathers of the crest have longitudinal marks of dark brown along the shafts. The breast is more strongly suffused with rufous, and the flank-feathers have dark brown shaft-streaks. The feathers of the tarsi have a good many dark brown spots appearing amongst the white. In the third stage all the feathers of the head and neck have dark brown centres, and the whole upper surface has become much darker owing to the dark brown markings predominating over the light. The feathers are, however, still broadly tipped and edged with white. The whole of the under parts are now rufous with paler edges to the feathers. There are one or two dark brown spots on the feathers on the sides of the breast, and the tarsi have completely assumed the spotted feathers of maturity. In the fourth

stage, which might be called semi-adult, the upper surface is still darker, almost as dark as in the adult, but still barred with paler colour and edged with white. The under surface is rufous, marked with brownish black, but the dark markings, instead of forming broad bars as in the adult, are more in the form of rounded spots—one on each web, so that the predominating colour is still rufous, not black barred with rufous-white as in the adult. The fifth stage is the adult plumage more or less complete, but signs of immaturity are usually to be observed in narrow pale edges to many of the feathers of the upper surface. In very old birds the black markings of the lower throat and breast predominate to such an extent that these parts almost appear black, the rufous-white bases of the feathers only showing here and there.

32. *Lophoaëtus occipitalis* (Daud.). Crested Hawk-Eagle.

I have met with this handsome Eagle only in eastern Pondoland, where it is not uncommon and is generally conspicuous, as it has a habit of sitting on the tops of dead trees, especially those which are often left standing by the natives in the middle of their corn lands. No doubt it finds these perches convenient posts from which it can keep a look out for the rats, mice, lizards, etc., which form its principal prey. It is a somewhat sluggish bird, spending a great deal of its time on the above-mentioned perches, and is seldom seen on the wing, although I have occasionally seen it soaring, but at no great height. Unless the bird is perched, the long crest is generally held at an angle of about 45 degrees, the tips of the long feathers moving gently in the breeze, but in flight the crest is laid flat on the neck.

As regards plumage-changes, there appears to be very little difference between the juvenile and adult. The young bird is usually described as being similar to the adult, but to differ in having the tarsi streaked with dark brown. Now, from the investigations I have made, I have come to the conclusion that some error has been made here,

as I have examined several specimens which are evidently young or immature, in my opinion, all of which have pure white tarsi. On the other hand, I have examined several others which I consider are fully adult, and which have streaked tarsal feathers. The only certain sign that I have found which indicates immaturity is that in all examples of what I consider to be young birds, the white bases of the outer webs of the primaries are more or less barred and freckled with brown, whereas in adults these feathers are uniform white at the base. I am also of the opinion that the youngest birds are palest in colour, and that as they grow older the plumage becomes darker. There are two specimens of this species in the Transvaal Museum, one from Rhodesia and the other from German East Africa, which are remarkably dark in colouring, almost black in fact, with the back of the neck, which is usually of a lighter colour, as dark as the rest of the plumage; they also have the tarsi streaked with dark brown. These I take to be fully adult and probably very old birds. I have a painting of a similar specimen, shot by myself in eastern Pondoland some years ago.

33. *Nisaëtus bellicosus* (Daud.). Martial Hawk-Eagle.

My experience of this Eagle is very small. It appeared to be a rare species in every district where I have collected. I saw the skin of an immature bird in eastern Pondoland, which was shot in the act of attacking a young pig; and in the South-West Protectorate a few specimens, one of which made a very determined stoop at a Francolin I had put up. However, it did not succeed, as the bird dropped like a stone into some long grass. This species must be fairly numerous in the King William's Town district, as I saw a number of specimens in the Museum at that place which had been collected there. These were principally young birds.

I have not had an opportunity of examining a sufficient number of individuals to enable me to discuss the plumage-changes, but from what I have seen I should think that

the change from juvenile to adult plumage was somewhat gradual, as in *Spizaëtus coronatus*. Thus I have seen immature specimens in which the feathers of the upper surface, although otherwise dark brown as in the adult, had broad pale edges; the feathers of the upper breast the same.

It seems to me that it will be necessary to form a new subgenus for this species, as it does not appear to be congeneric with the members of the genus *Nisaëtus*. By Sharpe and some other authors it was placed in the genus *Spizaëtus*; but although it resembles *S. coronatus* in the shape of the bill, in the possession of a crest, and in the juvenile and adult plumages, the proportions of the wing and tail are quite different.

34. *Nisaëtus spilogaster* (Bon.). African Hawk-Eagle.

I have only met with this species in the South-West Protectorate, and it was by no means common in those parts in which I have collected, so that I have had little opportunity of observing its habits. From what I have observed it is an entirely game-killing Eagle, with habits very similar to its near relative in Europe, *N. fasciatus*. One which I shot had been feeding on a guinea-fowl, another had the greater part of the hind leg of a hare in its crop, and I saw another pursuing some tame pigeons.

I have not much to note with regard to plumage-changes, but would draw attention to the fact that it appears to moult directly from the juvenile to the adult plumage; while signs of immaturity are observable for some time in a rufous edging to many of the feathers of the sides of the head, neck, and ear-coverts, and also in rufous tips to the feathers of the under parts, especially on the thighs,—in fact, I have rarely met with a specimen which has not had some sign of the rufous shading on the thighs. I have recently seen a very fine adult male living in the Zoological Gardens at Johannesburg which has struck me as being remarkable, in that the dark streaks on the breast and flanks are much broader than usual, covering the greater part of the feathers; the thighs are also strongly streaked with black.

35. *Hieraëtus ayresi* (Gurney). Ayres's Hawk-Eagle.
Lophotriorchis lucani (Sharpe).

I have nothing to add to what I have already written in a recent number of 'The Ibis' on the subject of this Eagle.

36. *Hieraëtus pennatus* (Gmel.). Booted Eagle.

The Booted Eagle appears to be rather a scarce species in South Africa. I shot a single adult female in eastern Pondoland, an immature female in East Griqualand, and have seen one or two in the South-West Protectorate. So much has already been recorded of its habits in Europe that I have nothing to add here, except to note that my Pondoland specimen had the remains of a small chicken in its crop. The East Griqualand specimen was also pursuing some fowls when I shot it.

Plumage-changes, and the question of the dark- and light-breasted forms have already been very fully discussed by Dresser in his 'Birds of Europe,' and by M. Bureau in an article in the Journal of the Assoc. Française pour l'Avancement des Sciences, vol. iv.

37. *Aquila verreauxi* (Less.). Black Eagle.

I have met with this fine Eagle among the Drakensberg Mountains on the border of East Griqualand, and recently in the mountainous parts of the South-West Protectorate, near Windhuk. It is everywhere rather a scarce bird, and I fear that unless laws are made, and enforced, for its protection it will soon become extinct in many parts, as it is accused by farmers of killing lambs, which it undoubtedly does occasionally; but I believe that the harm it does in this way is very small, as its favourite prey is undoubtedly the rock-rabbit (*Procavia*), to which may be added the young of the smaller antelopes—especially the Klipspringer, hares, and also game-birds of various sorts (I once found a guinea-fowl in a nest of this Eagle). It is a very powerful bird, and no doubt quite capable of killing and carrying off a small lamb or a kid, and a young bird which was kept in captivity by a German farmer in the Windhuk district one

day seized two goat kids, one in each foot, and would no doubt have killed both if help had not arrived in time. The flight is very fine, and there are few more beautiful sights than to watch a pair of these birds when they are soaring and playing together in the air, the snow-white rump and edging to the mantle showing up most beautifully against the jet-black of the rest of the plumage. I was fortunate enough to find a nest in the Windhuk district: it was situated on a ledge in the face of a sheer, but not very high cliff, and contained two eggs: one white, an almost perfect oval, very slightly broader at one end, measuring 79.9×60.9 mm. The other was similar in shape, but a good deal spotted and blotched with red-brown (dry blood-colour), chiefly at the *smaller* end; measurements 77×59 mm. The nest was a large mass of sticks with a shallow depression in the centre and lined with a thick pad of narrow green leaves of a shrub growing plentifully on the hills round about. This was on 5 May, 1919. The male bird was on the nest when I found it, and was not particularly wild, often approaching quite close while I remained in the vicinity; but the female, although she circled about within sight, would not come near me. Formerly this Eagle was thought to have a remarkably disconnected range, having only been recorded from Abyssinia and South Africa; however, it has since been recorded from East Africa and Rhodesia, and now from South-west Africa, and I believe that it will eventually be found to occur right through Africa wherever suitable mountainous country is to be found.

As regards plumage-changes, I have not been able to examine a sufficient number of specimens to be able to give a definite opinion, but it would seem that there are no intermediate stages between the juvenile and adult plumages. Signs of immaturity are to be seen in some specimens in otherwise adult plumage, in a slight rufous edging to some of the feathers on the sides of the head, and some brown tipping and freckling on the otherwise white feathers on the rump and sides of the mantle.

[To be continued.]